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TITLE: Electrolyte solution for manufacturing implant material, comprises precursor with phosphoric acid, calcium and metal, and is placed in reservoir in which anode and cathode materials are dipped to form oxidation layer by micro-arc oxidation

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BASIC-ABSTRACT:

NOVELTY - An electrolyte solution is accommodated in a reservoir in which an anode material and a cathode material are dipped to form an oxidation layer (220) on a surface of the anode material by micro-arc oxidation. The electrolyte solution comprises a precursor for providing phosphoric acid to an implant material and another precursor providing calcium and metallic ion giving antibacterial action and bio-compatibility to the implant material.

DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a manufacturing method of the implant material

(2) implant material.

USE - Electrolyte solution for manufacturing implant material (claimed).

ADVANTAGE - The implant material prepared using electrolyte solution has excellent antibacterial action, bio-compatibility, chemical and mechanical compatibility and no side effect. The implant material has high bio-affinity, thus preventing the metallic ion elution of implant. The implant material is manufactured by simple and low-cost method.

DESCRIPTION OF DRAWING(S) - The drawing shows an enlarged sectional view of an implant material with superior antibacterial action and bio-compatibility. (Drawing includes non-English language text)

Core material (200)

Oxidation layer (210)

Organism layer (220)

EQUIVALENT-ABSTRACTS:

INORGANIC CHEMISTRY

Preferred Materials: The metallic ion is the silver (Ag) ion preferably silver nitrate (AgNO_3), acetic acid silver (CH_3COOAg) or platinum (Pt) ion preferably hydrogen-platinum chloride (H_2PtCl_2). The precursor providing the phosphoric acid is beta -glycerophosphate disodium salt penta hydrate ($\text{C}_3\text{H}_7\text{Na}_2\text{O}_6\text{P} \cdot 5\text{H}_2\text{O}$, beta -GP), glycerolphosphate calcium salt and glycerophosphate disodium salt hydrate or the DL-a- glycerolphosphate disodium salt. The precursor providing the calcium is chosen from calcium acetate monohydrate (CH_3COO) ($2\text{Ca} \cdot \text{H}_2\text{O}$, CA) or the calcium acetate. The organism layer (230) contains hydroxyapatite (HAp), hydroxyapatite (Tricalcium phosphate) or phosphorous. The core material is the titanium (Ti), titanium-aluminum-vanadium (Ti-6Al-4V), titanium-aluminum-niobium (Ti-6Al-7Nb) or titanium-aluminum-zirconium (Ti-13Nb-13Zr).

CHOSEN-DRAWING: Dwg.2/25

TITLE-TERMS: ELECTROLYTIC SOLUTION MANUFACTURE IMPLANT MATERIAL
COMPRISE PRECURSOR PHOSPHORIC ACID CALCIUM METAL PLACE RESERVOIR
ANODE CATHODE DIP FORM OXIDATION LAYER MICRO ARC

DERWENT-CLASS: D22 E32 P34